

OPPORTUNITIES FOR SPECIAL STUDIES

REQUEST FOR PREPROPOSALS

**U.S. ENVIRONMENTAL PROTECTION AGENCY- REGION 4
WATER QUALITY PROTECTION PROGRAM
FOR THE
FLORIDA KEYS NATIONAL MARINE SANCTUARY**

**NOAA'S UNDERSEA RESEARCH PROGRAM
AND THE
UNIVERSITY OF NORTH CAROLINA AT WILMINGTON'S
NATIONAL UNDERSEA RESEARCH CENTER**

NOAA CORAL REEF CONSERVATION PROGRAM

SANCTUARY FRIENDS OF THE FLORIDA KEYS

Summary: The purpose of this notice is to advise the public that The United States Environmental Protection Agency (EPA) Region 4, the National Undersea Research Center NOAA's Undersea Research Program (NURP) and the University of North Carolina's National Undersea Center, the NOAA Coral Reef Conservation Program (NCRCP), and Sanctuary Friends of the Florida Keys announces opportunities for special studies in the Florida Keys National Marine Sanctuary. Funding is contingent upon the availability of federal appropriations. It is anticipated that projects funded under this announcement will have an October 1, 2003 start date.

Preproposals are requested for the following priority topics:

1. Factors affecting recruitment and survival of marine species
2. Triggering mechanisms and causative agents and/or processes that result in declines of coral abundance, coverage and species richness
3. Factors affecting the distribution, abundance, and virulence of pathogenic bacteria, viruses, or other pathogenic organisms
4. Affects of management measures on abundance and distribution of marine organisms

BACKGROUND

The Florida Keys National Marine Sanctuary (FKNMS) was created by Public Law 101-605, the Florida Keys National Marine Sanctuary and Protection Act of 1990. Included in the Sanctuary are 2900 square nautical miles of nearshore waters extending from Biscayne Bay to the Dry Tortugas. The 1990 Act directed EPA and the State of Florida, in consultation with the National Oceanic and Atmospheric Administration (NOAA), to develop a Water Quality Protection Program (WQPP) for the Sanctuary. This is the first designated marine sanctuary required to

have a WQPP.

The purpose of the WQPP is to recommend priority corrective actions and compliance schedules addressing point and nonpoint sources of pollution to restore and maintain the chemical, physical, and biological integrity of the Sanctuary. This includes restoration and maintenance of a balanced, indigenous population of corals, shellfish, fish and wildlife, and recreational activities in and on the water. In addition, the Act requires the development of a comprehensive water quality monitoring program. This announcement concerns the Research/Special Studies Component of the WQPP that has been incorporated into the FKNMS Draft Science Plan.

Since 1991, EPA and the State of Florida have worked with NOAA and other federal, state, and local governmental agencies, university scientists, environmental groups, and the public to develop a WQPP for the Sanctuary. The National Marine Sanctuaries Program Amendments Act of 1992 requires that EPA and the State implement the WQPP in cooperation with NOAA. A "Final Water Quality Protection Program Document" was approved by the WQPP Steering Committee and contains the rationale and strategies to achieve the goals of the WQPP.

The Draft FKNMS Science Plan identifies priority research areas that include the four topic areas for this request for preproposals. These topic areas have been reviewed by the FKNMS Technical Advisory Committee (TAC). The Draft Science Plan includes short- and long-term data collection, to understand causal linkages between pollution sources and ecological problems. This understanding will be used to develop predictive models, evaluate management alternatives, devise corrective actions, and improve the monitoring program.

The overall objective of the Special Studies Program is to identify and understand cause and effect relationships among pollutants, transport pathways, and the biological communities of the Sanctuary. Specific objectives are to: 1) identify and document cause and effect linkages between specific pollutants, water quality problems, and ecological impacts; 2) improve understanding of Sanctuary ecosystems, and develop predictive capabilities based on that understanding; and, 3) develop monitoring and research tools to detect pollutants, provide early warning of widespread ecological problems, and identify cause and effect relationships.

PRIORITY TOPICS FOR SPECIAL STUDIES

Recruitment and Survival of Marine Species

Monitoring activities have documented the declines of corals and other important marine species in the Florida Keys. Research is needed to assess the recruitment and survival of stony coral populations (particularly reef-building species) throughout the Keys, the potential effects of ecological parameters on the recovery of benthic communities, and evaluation of factors responsible for the declines. Two examples of non-coral species are given below, but research proposals need not be limited to these two example species.

The long-spined sea urchin (*Diadema antillarum*) virtually disappeared from waters surrounding

the Florida Keys and much of the Caribbean basin in 1983-84, and has only recently re-appeared in a few areas. The cause of the decline was never definitively established. Research is needed to assess natural recruitment rates and factors affecting survivorship. The effectiveness of efforts (laboratory culturing and/or transplantation/translocation experiments) to reintroduce urchins and their subsequent effect on community structure need to be evaluated.

The queen conch has been protected from collection in waters of the Florida Keys since 1986 because of severely diminished numbers. Even with protection, numbers of queen conch remain very low. Recent research suggests that some environmental factor(s) may prevent successful gonad development in conchs found in nearshore waters while those found offshore have mature gonads. Research is needed to determine factors controlling the population size of queen conch and methods to maximize the successful re-establishment of this important species.

Decline in Coral Abundance, Coverage, and Species Diversity

Monitoring at fixed stations throughout the Keys since 1996 has documented a 37% decline in living coral coverage within spur and groove habitats. Multiple stressors have been proposed for the loss of living coral, including nutrient addition to waters, coral diseases and bleaching, global climate change, and other human impacts. The etiologies of coral diseases in general, and the newly discovered diseases in particular, and the effects of disease on coral populations in terms of prevalence, incidence, and mortality rates are largely unknown. Also, the role of environmental factors, such as degraded water quality, in the onset and development of the diseases is not understood. Research is required to identify local, regional, and global causative factors and processes that cause coral decline in the Florida Keys. Research is needed to understand the short and long-term impacts of diseases, such as the impact of partial mortality on reproduction and other functions. Long-term studies of individual coral colonies are needed to assess the effects of coral bleaching, disease, mortality from various other sources, and potential for recovery.

Distribution and Abundance of Pathogenic Bacteria, Viruses, and other Pathogens

Previous research in the Florida Keys identified pathogenic viruses in 69% of nearshore sampling stations. Viruses were found to be infectious at some stations during winter months. Other research has documented the concentration of human bacteria and viruses in coral mucus and the identification of a potential coral disease organism as a widespread bacterium that may be found in the human intestine and other vertebrates. Research is required to assess the distribution and abundance of pathogens in waters of the Florida Keys, their sources and impacts to human health, and their role in the continued survival of the coral reef community.

Effects of Management Actions on Abundance and Distribution of Marine Organisms

Preliminary research on the effects of established fully protected (“no-take”) zones in the Florida Keys has demonstrated positive increases in population size and average size of several commercially and recreationally important fish species. Also, numbers and sizes of spiny lobsters have increased in areas closed to fishing and other extractive activities. Research is required to understand and assess the impacts of existing fully protected zones, including the

recently implemented Tortugas Ecological Reserve, on community interactions, including commercially important fish and invertebrate species, as well as non-commercially important organisms, such as algae, corals and sponges. Also, research is required to understand siting and sizing requirements of protected areas to maximize their environmental benefits.

REQUEST FOR PREPROPOSALS

Investigators interested in submitting a preproposal in response to this announcement should immediately fill out the Notice-of-Interest form (Attachment A) attached to this announcement and send it to the address or FAX number given on the form.

EPA has secured approximately \$300,000 and Sanctuary Friends of the Florida Keys has secured \$100,000 to fund the special studies discussed above. In addition, it is anticipated that NURP/NCRCF will contribute \$150,000 in NOAA Coral Reef Conservation Program funds, for total amount of approximately \$550,000 for this announcement. Accepted proposals will be eligible to receive funds via a grant, cooperative agreement, or interagency agreement (federal agencies). Proposals may be written for one or two years. Individual grants/cooperative agreements/interagency agreements should not exceed a total of \$100,000 per proposal. A minimum of 5% non-federal match is required for research projects funded by EPA and Sanctuary Friends; a minimum of 50% non-federal match is required for research projects funded by NURP/NCRCF. Non-federal matching funds may be comprised of a variety of public and private sources and may include in-kind contributions and other non-cash support. For further guidance on the matching requirement, please refer to Section 6403(b)(1) of the Coral Conservation Act of 2000. Projects with fieldwork in the upper Keys may be eligible to receive logistical support through NURC/UNCW in Key Largo.

Eligibility criteria for the NURP/NCRCF funds:

Eligible applicants are U.S. institutions of higher education, not-for-profit institutions, and state, local, and Indian tribal governments. Proposals may include federal researchers as collaborators with a researcher who is affiliated with a U.S. academic institution, non-federal agency, or any other non-profit organization. Federal organizations may not charge federal salary or overhead, but other categories are appropriate. Non-NOAA or EPA federal applicants must demonstrate legal authority to receive funds from another federal agency in excess of their appropriation. Proposals selected for funding from non-federal applicants will be funded through a cost-reimbursable or cooperative agreement. For proposals with a federal partner, the federal partner will receive funds through an inter-agency transfer (or intra-agency in the Case of a NOAA or EPA partner) from the national NURP office.

Submission of a preproposal is required. **Five copies** of a preproposal must be submitted no later than February 3, 2003. Preproposals should consist of a Preproposal Title Page (Attachment B) and **no greater than three pages of text** (12 point/10 pitch type).

Preproposals will be evaluated and ranked by the Management Committee of the WQPP and NURP/NCRCF staff. Evaluation of preproposals will be based upon conformance with this

request and the goals and objectives of the FKNMS Draft Science Plan. A Draft Science Plan will be e-mailed upon request.

Investigators will be notified by February 10, 2003 whether a full proposal should be submitted for review. At that time, detailed instructions for the preparation and submission of the full proposal will be sent to authors submitting successful preproposals. The deadline for receipt of a full proposal is March 10, 2003. Full proposals must be no greater than fifteen pages of text.

Full proposals will be peer reviewed by an external review panel and ranked according to scientific merit and feasibility. Highly ranked proposals will be presented to the FKNMS TAC for review. The TAC will rank proposals with high scientific merit based upon relevance to the goals and objectives of the Draft Science Plan. The Management Committee will give great weight to the recommendations of the TAC in making their final selection of proposals for funding. The Management Committee will present their top candidates for funding to the Special Studies Subcommittee of the Steering Committee for final approval. Grants will be awarded no later than September 30, 2003.

If you have any questions concerning the Water Quality Protection Program or this request for preproposals, please call Bill Kruczynski at 850-934-9298 or e-mail “kruczynski.bill@epa.gov”.

OPPORTUNITIES FOR SPECIAL STUDIES

ATTACHMENT A

NOTICE OF INTEREST

**U.S. ENVIRONMENTAL PROTECTION AGENCY
WATER QUALITY PROTECTION PROGRAM
FOR THE FLORIDA KEYS NATIONAL MARINE SANCTUARY**

**UNIVERSITY OF NORTH CAROLINA AT WILMINGTON'S
NATIONAL UNDERSEA RESEARCH CENTER**

SANCTUARY FRIENDS OF THE FLORIDA KEYS

Investigators interested in submitting a preproposal for special studies in the Florida Keys National Marine Sanctuary should complete this form and send it by mail or FAX to:

Dr. Bill Kruczynski, Program Scientist
U.S. Environmental Protection Agency
Gulf Ecology Laboratory
1 Sabine Island
Gulf Breeze, FL 32561

FAX 850 934-9201

E-mail: kruczynski.bill@epa.gov

Please Note: Preproposals (5 copies) must be received no later than February 3, 2003.

Name: _____ **Title:** _____

Affiliation: _____

Department: _____

Mailing Address: _____ **City:** _____

State: _____ **Zip:** _____

Telephone Number: _____ **FAX:** _____

Email: _____

Your topic(s) of interest:

Recruitment and Survival _____

Coral Decline _____

Pathogens _____

Management Effects _____

OPPORTUNITIES FOR SPECIAL STUDIES

**ATTACHMENT B
PREPROPOSAL TITLE PAGE**

**TO BE SUBMITTED WITH FIVE COPIES OF THREE PAGE MAXIMUM
PREPROPOSAL NO LATER THAN FEBRUARY 3, 2003**

**PROJECT
TITLE**_____

PROJECT LEADER

OTHER INVESTIGATORS

Name

Affiliation

Address

Telephone

E-mail

Co-Funding from an agency other than EPA is_____ is not_____ required to support the proposed special study. If co-funding is available, please indicate the amount of the expected non-federal match and percentage of match in relation to expected total request:_____.

SUBMITTED BY_____

DATE_____

Signature_____